

IN THE CLAIMS

Please amend the claims as follows:

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Claims 1-21 (Canceled).

Claim ~~22~~. (New) A recording apparatus for a holographic recording medium having an alignment mark and designed to irradiate a recording light beam onto a recording region of holographic recording medium to record information as a hologram, the recording apparatus comprising:

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a recording laser irradiating the recording light beam for recording the hologram onto the holographic recording medium;

a beam splitter splitting the recording light beam into two beams, one of which is utilized as a reference light beam;

a spatial modulator providing information to the other beam obtained from the splitting to obtain a signal light beam;

a first lens converging the reference light beam and directing the converged reference light beam toward the holographic recording medium;

a second lens converging the signal light beam and directing the converged signal light beam toward the holographic recording medium;

an alignment laser irradiating an alignment light beam perpendicularly onto the holographic recording medium, the alignment light beam being less absorbed than the recording light beam by the holographic recording medium, and being reflected by the holographic recording medium;

a third lens converging the alignment light beam irradiated from the alignment laser and directing the alignment light beam toward the holographic recording medium;

a photodetector detecting a light intensity of the alignment light beam reflected from the holographic recording medium to recognize the alignment mark; and

a driving mechanism adjusting a region to be irradiated with the signal light beam and the reference light beam relative to the holographic recording medium on the basis of the alignment mark,

wherein the signal light beam and the reference light beam are irradiated parallel with a track of the holographic recording medium to write an interference fringe in a direction perpendicular to the track of the recording region.

Claim 23. (New) The recording apparatus for a holographic recording medium according to claim 22, wherein the holographic recording medium has a recessed/projected surface corresponding to a configuration of the track of a recording region and is provided on the recessed/projected surface thereof with a layer which reflects the alignment beam.

Claim 24. (New) The recording apparatus for a holographic recording medium according to claim 22, wherein said third lens converging the alignment light beam to be irradiated from the alignment laser is formed integral with the first lens converging the reference light beam to be irradiated from the recording laser.

Claim 25. (New) The recording apparatus for a holographic recording medium according to claim 22, wherein said third lens converging the alignment light beam to be irradiated from the alignment laser is formed integral with the first lens converging the reference light beam to be irradiated from the recording laser and with the second lens converging the signal light beam to be irradiated from the recording laser.

Claim 26. (New) The recording apparatus for a holographic recording medium according to claim 22, wherein the wavelength of the recording light beam is shorter than the wavelength of the alignment light beam.

Claim 27: (New) A recording apparatus for a holographic recording medium having an alignment mark and designed to irradiate a recording light beam onto a recording region of a holographic recording medium to record information as a hologram, the recording apparatus comprising:

a recording laser irradiating the recording light beam for recording the hologram onto the holographic recording medium;

a beam splitter splitting the recording light beam into two beams, one of which is utilized as a reference light beam;

a spatial modulator providing information to the other beam obtained from the splitting to obtain a signal light beam;

a first lens converging the reference light beam and directing the converged reference light beam toward the holographic recording medium;

a second lens converging the signal light beam and directing the converged signal light beam toward the holographic recording medium;

an alignment laser irradiating an alignment light beam perpendicularly onto the holographic recording medium, the alignment light beam being less absorbed than the recording light beam by the holographic recording medium, and being reflected by the holographic recording medium;

a third lens converging the alignment light beam irradiated from the alignment laser and directing the alignment light beam toward the holographic recording medium;

a photodetector detecting a light intensity of the alignment light beam reflected from the holographic recording medium to recognize the alignment mark; and

a driving mechanism adjusting a region to be irradiated with the signal light beam and the reference light beam relative to the holographic recording medium on the basis of the alignment mark,

wherein the signal light beam and the reference light beam are irradiated onto the holographic recording medium at an incident angle making it impossible to generate a primary interference of the alignment light beam.

Claim 28. (New) The recording apparatus for a holographic recording medium according to claim 27, wherein the signal light beam and the reference light beam are irradiated onto the holographic recording medium in a condition represented by the following numerical formula:

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$$\left( \frac{\lambda_2}{\lambda_1} - \frac{1}{\cos \theta_2^{in} - \cos \theta_1^{in}} \right) * \sqrt{2 - 2 \cos(\theta_2^{in} - \theta_1^{in})} < 1$$

wherein  $\lambda_1$  and  $\lambda_2$  are wavelengths of the recording light beam and alignment light beam,  $\theta_1^{in}$  is an incident angle of the signal light beam to the surface of the recording region of the holographic recording medium, and  $\theta_2^{in}$  is an incident angle of the reference light beam to the surface of the recording region of the holographic recording medium.

Claim 29. (New) The recording apparatus for a holographic recording medium according to claim 27, wherein the holographic recording medium has a recessed/projected surface corresponding to a configuration of the track of a recording region and is provided on the recessed/projected surface thereof with a layer which reflects the alignment beam.

Claim 30. (New) The recording apparatus for a holographic recording medium according to claim 27, wherein said third lens converging the alignment light beam to be irradiated from the alignment laser is formed integral with the first lens converging the reference light beam to be irradiated from the recording laser.

Claim 31. (New) The recording apparatus for a holographic recording medium according to claim 27, wherein said third lens converging the alignment light beam to be irradiated from the alignment laser is formed integral with the first lens converging the reference light beam to be irradiated from the recording laser and with the second lens converging the signal light beam to be irradiated from the recording laser.

Application No. 09/956,972  
Reply to Office Action of October 6, 2003

*A* Claim ~~32~~<sup>11</sup>. (New) The recording apparatus for a holographic recording medium according to claim ~~27~~<sup>6</sup>, wherein the wavelength of the recording light beam is shorter than the wavelength of the alignment light beam.

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